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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,384	02/27/2004	Klaus Goller	INFN/0061	4918

7590 01/21/2005

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EXAMINER
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SEFER, AHMED N

ART UNIT	PAPER NUMBER
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2826

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/789,384

**Applicant(s)**

GOLLER, KLAUS

**Examiner**

A. Sefer

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 5-9 and 12-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 10 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I (claims 1-4 and 10-11) in the reply filed on November 1, 2004 is acknowledged. The traversal is on the ground(s) that claim 5 does not include "a step of at least one other conductor of the first metal plane being electrically connected to another conductor of the second metal plane". Claim 9 -- which depends on claim 5 -- which recites the limitation "at least one other conductor of the first metal plane being electrically connected to another conductor of the second metal plane" was identified in error as claim 5. However, the requirement is still deemed valid and the argument is not found persuasive because in addition to the reasons stated in the Restriction requirement dated 10/1/2004, the at least one other conductor of the first metal plane being electrically connected to another conductor of the second metal plane could be performed after or before rather than during the process for electrically connecting the second contact to the conductor of the second metal plane.

The requirement is still deemed proper and is therefore made FINAL.

### ***Drawings***

2. Figure 16 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted

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by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because reference numeral 33 (see page 17, par. 0058) is not shown in the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kondou et al. ("Kondou") USPN 4,902,637.

Kondou discloses in fig. 2 a semiconductor device, comprising: a substrate having a process surface; a first contact 12 and a second contact 14c arranged on the substrate, a second contact surface of the second contact being at a greater distance, in a substrate-normal direction, from the substrate than a first contact surface of the first contact; a first conductor 11 disposed in a first patterned metal plane and electrically connected to the first contact surface; and a second conductor 21 disposed in a second patterned metal plane and electrically connected to the second contact surface; wherein the second metal plane is disposed at a greater distance, in the substrate-normal direction, from the substrate than the first metal plane.

Regarding claim 3, Kondou discloses the first contact 12 is connected to the conductor of the first metal plane 11 via a first contact hole (unnumbered) which extends in the substrate-normal direction and is filled with an electrically conductive contact-hole filling material (col. 4, lines 17-19).

Regarding claim 3, Kondou discloses the second contact 14c is connected to the second conductor of the second metal plane 21 via a second contact hole 5c, which extends in the substrate-normal direction and is filled with an electrically conductive contact-hole filling material (col. 4, lines 17-19).

6. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Fukuda et al. ("Fukuda") USPN 6,462,395.

Fukuda discloses in fig. 8B a semiconductor device, comprising: a substrate having a process surface; a first contact 41b and a second contact 42b arranged on the substrate, a second contact surface of the second contact being at a greater distance, in a substrate-normal direction, from the substrate than a first contact surface of the first contact; a first conductor 51e disposed in a first patterned metal plane and electrically connected to the first contact surface; and a second conductor 51f disposed in a second patterned metal plane and electrically connected to the second contact surface; wherein the second metal plane is disposed at a greater distance, in the substrate-normal direction, from the substrate than the first metal plane.

Regarding claim 3, Fukuda discloses the first contact is connected to the conductor of the first metal plane via a first contact hole 44q which extends in the substrate-normal direction and is filled with an electrically conductive contact-hole filling material.

Regarding claim 3, Fukuda discloses the second contact is connected to the second conductor of the second metal plane via a second contact hole 46p, which extends in the substrate-normal direction and is filled with an electrically conductive contact-hole filling material.

7. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Mitsuya et al. ("Mitsuya") JP 2000-236027.

Mitsuya discloses in fig. 5 a semiconductor device, having a substrate having a process surface; a first contact 305 and a second contact 204 arranged on the substrate, a second contact surface of the second contact being at a greater distance, in the substrate-normal direction, from the substrate than a first contact surface of the first contact; and a patterned metal plane 3 wherein a first conductor and a second conductor are formed; wherein the first contact is

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electrically connected to the first conductor of the patterned metal plane via a contact hole (unnumbered), which extends in the substrate-normal direction and is filled with an electrically conductive contact-hole filling material, and wherein the second contact directly adjoins the second conductor of the patterned metal plane.

8. Claim 10 is rejected under 35 U.S.C. 102(e) as being anticipated by Inumiya et al. (“Inumiya”) US PG-Pub 2002/0117698.

Inumiya discloses in fig. 5 a semiconductor device, having a substrate having a process surface; a first contact 17 and a second contact 20 arranged on the substrate, a second contact surface of the second contact being at a greater distance, in the substrate-normal direction, from the substrate than a first contact surface of the first contact; and a patterned metal plane 22 wherein a first conductor and a second conductor are formed; wherein the first contact is electrically connected to the first conductor of the patterned metal plane via a contact hole 23, which extends in the substrate-normal direction and is filled with an electrically conductive contact-hole filling material, and wherein the second contact directly adjoins the second conductor of the patterned metal plane.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondou/Fukuda in view of Yokoyama US PG-Pub 2001/0029079.

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Kondou/ Fukuda discloses the device structure as recited in the claim including the first contact being source/drain contact of a MOS transistor, but lacks anticipation of first contact being an emitter contact of a bipolar transistor.

Yokoyama discloses in fig. 5 a semiconductor device, comprising: a substrate having a process surface; a source contact 8 and an emitter contact 10 arranged on the substrate, a second contact surface of the second contact being at a greater distance, in a substrate-normal direction, from the substrate than a first contact surface of the first contact.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Yokoyama teachings since that would provide the advantages of both CMOS and bipolar transistors.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inumiya/Mitsuya in view of Yokoyama US PG-Pub 2001/0029079.

Inumiya/ Mitsuya discloses the device structure as recited in the claim including the first contact being source/drain contact of a MOS transistor, but lacks anticipation of first contact being an emitter contact of a bipolar transistor.

Yokoyama discloses in fig. 5 a semiconductor device, comprising: a substrate having a process surface; a source contact 8 and an emitter contact 10 arranged on the substrate, a second contact surface of the second contact being at a greater distance, in a substrate-normal direction, from the substrate than a first contact surface of the first contact.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Yokoyama teachings since that would provide the advantages of both CMOS and bipolar transistors.



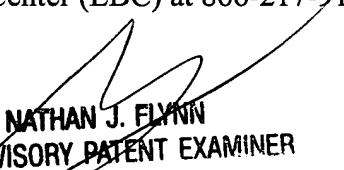
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS  
December 29, 2004

  
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